

INTERFACE CARD FIXTURE FOR A COMPUTER SYSTEM

Inventor:
Yi-Lung Kuo

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 60/456,352, filed March 20, 2003, which is hereby incorporated in its entirety by reference.

BACKGROUND

Field of the Invention

[0002] The present invention relates to mounting an interface card within a computer housing.

Background of the Invention

[0003] To achieve certain functionalities, personal computers are usually connected to corresponding peripheral components. One mechanism for connecting a computer to a peripheral component is with a PCI (peripheral component interconnect) interface, which allows the computer's motherboard to be connected to a PCI card. PCI cards include network cards, modems, and many other types of devices.

[0004] In a typical computer system, a motherboard is integrated with PCI slots to enable customers to plug different PCI cards into the computer for processing output signals. For this reason, the computer chassis typically includes multiple slot openings covered with clamps, which hold the card in place and can be removed before and restored

after plugging PCI cards onto the slots. This has been the prevailing configuration of computer chassis.

[0005] The stability of the PCI cards in the slots, and hence their reliability, depend on their firm installation. Any failure in this respect may affect the operation of the computer.

SUMMARY OF THE INVENTION

[0006] To provide a mechanical interface by which PCI and other cards can be mounted to a motherboard and within a computer chassis, a fixture assembly includes a computer chassis with at least one slot opening and a window above the slot opening. A card can be installed in the computer, for example into a slot on the motherboard inside the computer, so that an external interface of the card matches up with a slot opening in the chassis, and an extension of a bracket attached to the card protrudes through the window. To secure the card in place, a clamp is attached over the window, where the clamp includes one or more outward folds to press against the extension of the bracket. The card's bracket may further extend through openings in the bottom of the chassis to improve the securing of the card. When a card is installed within the computer, therefore, its bracket seals the slot opening in the chassis while the extension protrudes from the window in the chassis, and the clamp fixes the card in place. The clamp may be fastened onto the chassis over the window thereof with screws or any other suitable fastening mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 shows an exploded view of the card fixture system in accordance with an embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] A computer card fixture system and method of installation are described with reference to a typical embodiment of a personal computer, although the invention can be applied to any number of computing systems. As shown in FIG. 1, the computer includes a computer chassis 1, one or more cards 2 to be installed in the computer chassis 1, and a securing clamp 4. The card 2 may be any type of card configured to be coupled to the motherboard of a computer (e.g., through a socket thereon) and secure within the computer chassis 1. For example, the card 2 may be any type of standard interface card that allows the computer to communicate with an external device. In addition, or alternatively, the card 2 may be a standard PCI (peripheral component interconnect) card, an AGP (accelerated graphics port) card, a network card, a modem, or any other suitable card for insertion in a computer system. Such cards typically include external terminals for connection to other devices and bottom terminals for plugging into slots on a motherboard.

[0009] The computer chassis 1 accommodates a motherboard and any other internal components or devices for the computer. The chassis 1 includes one or more vertical slot openings 11 that allow external devices to be connected to any installed cards 2. Generally, the number of openings 11 corresponds to the number of slots in the motherboard for receiving the cards. In one embodiment, bottom openings 12 in the computer chassis 1 accommodate the lower end of the brackets 3, further helping to secure the cards 2 when installed.

[0010] In one embodiment, each card 2 includes a bracket 3, which provides the card 2 an interface to the outside of the chassis 1 when installed, and thus to external components and devices. The narrow brackets 3 fastened onto the PCI cards 2 may expose external

terminals for connection with external devices through slot openings 11 in the computer chassis 1. Accordingly, the openings 11 are preferably dimensioned to correspond to the brackets 3 of the cards 2 intended for use with the computer. Often, the brackets 3 include an extension 31 that protrudes from one end of the bracket 3 at a right-angle design. This extension 31 facilitates the securing of the card 2 when installed in the computer.

[0011] The chassis 1 further includes a window 13 above the openings 11, as shown in FIG. 1. This window 13 enables the extension 31 of the bracket 3 to extend through the chassis 1. In addition, a pair of lock holes 14 is formed through the chassis 1 above the window 13. The clamp 4, preferably slightly larger than but corresponding to the window 13, is used to cover the window 13. The clamp 4 can be fixed onto the chassis 1 to cover the window 13 by screws or some other fastening mechanism through holes 41 and lock holes 14. The clamp 4 further includes outward folds 42 on its bottom side to match the brackets 3. When fixed onto the chassis 1 as described, therefore, the outward folds 42 of the clamp 4 secure the brackets 3, and thus the cards 2, in place.

[0012] To install a card 2 and secure it within the chassis 1, according to one embodiment, a card 2 is installed into a slot of the motherboard so that the extension 31 of the bracket 31 protrudes out of the chassis 1 through the window 31. Before the card 2 is installed, however, it may be necessary to remove any protecting covers that are often found over openings 11 in a standard computer chassis 1. When installed, the lower ends of the bracket 3 may stick out of the bottom openings 12 of the chassis 1, which helps to secure the card 2. Then, the clamp 4 is installed over the window, with its outward folds 42 matching the extension 31 of the bracket 3. The clamp 4 is fixed in that position by screws or other fasteners through the holes 41 and the lock holes 14. In this way, the clamp

4 secures the card 2 in place by securing its bracket 3, while the card 2 may be further secured at the opposite end of its bracket 3 by the lower openings 12 of the chassis 1.

[0013] Although the brackets 3 may protrude from the bottom of the chassis 1, they preferably do not extend more than the height of a foot pad supporting the computer. In this way, the bracket 3 will not touch or scrape against a surface on which the computer is resting. Additionally, this configuration allows for lower positioned slot openings 11, helping to decrease the height of the computer chassis 1.

[0014] The foregoing description of the embodiments of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Persons skilled in the relevant art can appreciate that many modifications and variations are possible in light of the above teaching. It is therefore intended that the scope of the invention be limited not by this detailed description, but rather by the claims appended hereto.